

BIOLOGY 3010-BIOLOGICAL EVOLUTION

Professor: Curt Walker, Ph.D. Spring Semester 2015, 3 credits

Lecture section 1, **23176**, Browning 101, at 11-11:50 p.m. MWF

Office: 124 Science Building; phone ext: 652-7785

Office hours: MWF @ 9–9:50 a.m., R @ 10-noon.

Textbook: Evolution: Making Sense of Life by Zimmer and Emlen 2012. Roberts and Company Publishing.

Who Should Take This Course: BIOL 3010 is intended for life science majors, and explores the details of evolutionary processes and their effects on our natural world. It is the student's responsibility to ascertain that this course is acceptable in his/her program of study. BIOL 1620/1625 should have been successfully completed by students enrolling in the course, and Genetics is recommended.

Learning Outcomes:

Goal 1: Demonstrate breadth of discipline-specific knowledge

Outcome 1: Students will describe and explain fundamental topics in five principal perspectives of biology:

- **The chemical and molecular machinations operating within all biological processes**
- **The centrality of genetic systems' governance of life's actions from the cellular to the phyletic**
- The coordinated regulation of integrated cellular systems and their effect on the physiological functioning of organisms
- **The dynamic interaction of living systems with each other and their environments**
- **The transforming role of evolution in changing life forms and how evolution explains both the unity and diversity of life**

Goal 2: Demonstrate the capacity to think independently and critically

Outcome 2: Students will employ scientific methods to acquire, analyze and apply knowledge of biological phenomena.

Outcome 3: Students will evaluate scientific ideas and information while maintaining receptivity to potential alternative predications.

Goal 3: Effectively convey scientific literacy through various mediums of communication

Outcome 4: *Reading Comprehension:* Students will analyze and critique scientific literature: identifying hypotheses, critiquing methods, interpreting data and results, and

articulating the context of discussions.

Outcome 5: *Written Communication:* Students will produce well-written reports and/or research papers covering topics in biology. These papers will be presented in the accepted formats of scientific research articles.

Cheating: Unfortunately this is becoming a problem at Dixie State College as we continue to grow dramatically. Cheating will not be tolerated in any form, including plagiarism, using stolen tests for study, copying the answers of another during a test, or informing other students of test contents before they've taken the exam. I will try to have any cheaters dismissed from the college; obviously they will fail the course and not be allowed to register for the course again. Turnitin will be used on paper assignment.

Grading Scale:

93-100% = A (4.0)	80-82.99% = B- (2.7)	67-69.99% = D+ (1.4)
90-92.99% = A- (3.7)	77-79.99% = C+ (2.4)	63-66.99% = D (1.0)
87-89.99% = B+ (3.4)	73-76.99% = C (2.0)	60-62.99% = D- (0.7)
83-86.99% = B (3.0)	70-72.99% = C- (1.7)	59% or less F (0)

At any time, the student may request a discussion of his/her grade in the course.

It is the student's responsibility to request grade information, which is always available.

Disabilities: Proper documentation of a disability is required in order to receive services or accommodations. Any student eligible for and requesting reasonable academic accommodations due to a disability must provide a letter of accommodation to their professor from the Disability Resource Center within the first two weeks of the beginning of classes. Please contact the Center on the main campus to follow through with the documentation process. We are located in the Student Services Center Room #201, or you may call for an appointment and further information regarding the Americans with Disabilities Act (ADA) at 652-7516.

Attendance: Students are responsible for all material presented in lectures. Excused absences must be pre-arranged. It is inappropriate to bring children to class, and Dixie State College policy prohibits this practice.

Term Paper: One research paper will be required, which will count for 10% of the course grade. Topics must be approved by the professor, and must be explicitly related to a course topic. The outline will be due early in the semester, followed by a roughdraft, and finally by the finished version well before final exams begin. More details about the paper will be furnished later; the writing must be very clear, and grammatically correct. Citations of acceptable form must be used. Plagiarism of course results in a zero.

Exams: Four exams will be given, in addition to a comprehensive final exam. Questions will include fill-in-blank, multiple choice, and short essays. ***Each exam, including the final, is worth 200 points, for a total of 1000 points possible.*** Missing an exam is strongly discouraged; makeup exams will occasionally be given, but 20 points per day

will be deducted from the score. Exams are taken in the Testing Center. *Unless prior arrangements are made, 20 pts/day are deducted for exams taken late. No exceptions.*

My exam scores: Exam 1: _____/200, _____% Quizzes:
 Exam 2: _____/150, _____%
 Exam 3: _____/150, _____%
 Exam 4: _____/200, _____%
 Paper: _____/100, _____%
 Final: _____/200, _____%
 Total: _____/1000, _____%

Italicized below are simbio exercises

LECTURE SCHEDULE

Minimum Reading:

M	1/12	Course Introduction, Meaning of Evolution and History of Evolutionary Thought	Chapter 1
W	1/14	The Virus and the Whale	Chapter 1
F	1/16	Darwin	Chapter 2
W	1/21	Fossils (<i>Darwinian Snails</i>)	Chapter 3
F	1/23	Fossils	Chapter 3
M	1/26	Fossils	Chapter 3
W	1/28	Intro to Phylogenetics: Practice**	Chapter 4
F	1/30	Further phylogenetics: Examples	Chapter 4
M	2/2	Phylogeny: Humans	Chapter 4
W	2/4	Mutations (Exam 1, 200 pts)	Chapter 5
F	2/6	Mendelian Genetics	Chapter 5
M	2/9	Two Main Types of Evolution (<i>Genetic Drift</i>)	Chapter 6
W	2/11	More Drift and Selection (Typed outlines due)	Chapter 6
F	2/13	What Darwin Never Knew (<i>Guppies Spots</i>)	FILM
W	2/18	Inbreeding and Genetics Problems	Chapter 6
F	2/20	What Darwin Never Knew	FILM
M	2/23	Quantitative Genetics	Chapter 7
W	2/25	Quantitative Genetics	Chapter 7
F	2/27	Natural Selection (Exam 2, 150 pts)	Chapter 8
M	3/2	Natural Selection Game	
W	3/4	Natural Selection	Chapter 8
F	3/6	A Brief Overview of Genetic History	Chapter 9
M	3/16	Adaptation	Chapter 10
W	3/18	Adaptation	Chapter 10
F	3/20	Adaptation	Chapter 10
M	3/23	Adaptation	Chapter 10
W	3/25	Sex and Selection (Exam 3, 150 pts)	Chapter 11
F	3/27	Sex and Selection	Chapter 11
M	3/30	A Brief Overview of Life Histories	Chapter 12
W	4/1	Speciation	Chapter 13
F	4/3	Speciation (Roughdrafts due**)	Chapter 13
M	4/6	Speciation	Chapter 13

W	4/8	Macroevolution	Chapter 14
F	4/10	Macroevolution	Chapter 14
M	4/13	Macroevolution	Chapter 14
W	4/15	Macroevolution (Exam 4, 200 pts)	Chapter 14
F	4/17	Coevolution	Chapter 15
M	4/20	Coevolution (Papers due**)	Chapter 15
W	4/22	Coevolution	Chapter 15
F	4/24	Behavioral Evolution	Chapter 16
M	4/27	Behavioral Evolution	Chapter 16
W	4/29	Final Thoughts	
		Final Thoughts	
		Course Conclusion	

FINAL EXAM: Monday, May 4th, 10 a.m. - noon. Penalty for missing final exam: course failure. No early exams will be given without dean's permission.